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(21) International Application Number: PCT/US99/19580 (22) International Filing Date: 26 August 1999 (26.08.99) (30) Priority Data: 09/159,442                      24 September 1998 (24.09.98)    US (71) Applicant (for all designated States except US): AMERICAN TECHNOLOGY CORPORATION [US/US]; 13114 Evening Creek Drive South, San Diego, CA 92128 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): SELFRIDGE, Alan, Robert [US/US]; 50 Ocean View Road, Los Gatos, CA 95030 (US). KHURI-YAKUB, Pierre [US/US]; 4151 Donald Drive, Palo Alto, CA (US). NORRIS, Elwood, G. [US/US]; 13824 San Sebastian Way, Poway, CA 92064 (US). CROFT, James, J., III [US/US]; 13633 Quiet Hills Drive, Poway, CA 92064 (US). (74) Agents: NORTH, Vaughn, W. et al.; Thorpe, North & Western, LLP, P.O. Box 1219, Sandy, UT 84091-1219 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(54) Title: PARAMETRIC LOUDSPEAKER WITH ELECTRO-ACOUSTICAL DIAPHRAGM TRANSDUCER			
(57) Abstract <p>A parametric loudspeaker that directly generates multiple high frequencies to indirectly create lower frequencies through the use of substantially monolithic film transducers that are generally larger than a wavelength of the carrier frequency in diameter or cross section. These film transducers (33) include electrostatic, electret, PVDF, electrothermal mechanical film, and planar magnetic configurations. Metal, foam, plastic or wood support structures or stators (31) may be used to support the film transducers. An alternative configuration may include a movable diaphragm stretched along the core member and displaced a short distance within a strong portion of a magnetic field. At least one, low mass, planar, conductive coil is disposed on the movable diaphragm and includes two contacts for enabling current flow through the coil to produce a first magnetic field to attract and repel the diaphragm at a desired frequency for development of a series of compression waves which may be adjusted to include an ultrasonic frequency range.</p>			